

The opinion in support of the decision being entered  
today was not written for publication and is  
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Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte HAOPING YU,  
BARTH ALAN CANFIELD,  
BILLY WESLEY BEYERS, JR.  
and WAI-MAN LAM

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Appeal No. 2001-0343  
Application 08/911,526

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ON BRIEF

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Before THOMAS, KRASS and LALL, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellants have appealed to the Board from the examiner's  
final rejection of claims 1-18.

Representative claim 1 is reproduced below:

1. A method for recompressing image representative input pixel block data comprising a fixed first number of data bits to provide recompressed pixel block data of a target fixed reduced second number of bits less than said first number, the steps comprising:

providing a hybrid quantization coding table including,

(a) a first codeword set comprising a plurality of codewords of a first fixed bit length representing a corresponding plurality of data quantization intervals of said coding table,

(b) a second codeword set including a codeword of a second fixed length shorter than said first length representing a data quantization interval of said coding table;

dynamically selecting between codewords of said first and second codeword sets in quantizing an input pixel block to provide a recompressed pixel block of said target fixed reduced second number of bits; and

assigning said selected codewords to data elements of said input pixel block to provide a corresponding recompressed pixel block containing said fixed reduced second number of bits.

The following references are relied on by the examiner:

Canfield et al. (Canfield)      5,818,530      Oct. 6, 1998  
(filing date June 19, 1996)

Liu et al. (Liu)      6,009,203      Dec. 28, 1999  
(effective filing date Apr. 18, 1995)

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Claims 1-18 stand rejected under 35 U.S.C. § 103. As evidence of obviousness, the examiner relies upon Canfield in view of Liu.

Rather than repeat the positions of the appellants and the examiner, reference is made to appellants' briefs for their positions and to the final rejection and answer for the examiner's positions.

#### OPINION

We reverse.

Whereas independent method claim 1 requires a hybrid quantization coding table for recompressing purposes, the system of claim 6 does not specifically recite the quantization coding table as being a hybrid-type and merely recites it as a compression table. Notwithstanding these considerations, both claims clearly recite that the table must include a first codeword set and a second codeword set, where the second codeword set is of a shorter length than the first length of the first codeword set.

The examiner's initial position at page 3 of the final rejection indicates that Canfield does not disclose this hybrid quantization coding table having a first set of codewords of a fixed bit length with a second set of codewords having a length shorter than the first set, and also fails to teach the feature of dynamically selecting between the codewords. In the final rejection, the examiner relies upon Liu to cure these deficiencies. However, beginning at the bottom of page 4 of the answer, the examiner asserts that Canfield does teach the table having the required first and second set of codewords.

According to Canfield's teachings beginning at the top of column 3, the showing in Figure 1 of elements 10, 12, 14, 16, 18, 22 and 20 comprises conventional MPEG decoders. Elements 29 and 30 in effect therefore comprise structure corresponding to the claimed recompressing of independent claim 1 on appeal or the compressing capabilities of independent claim 6 on appeal. No tables are taught to be used in association with the horizontal data decimation block 29 in Figure 1 which is asserted to be essentially a down sampling function discussed in the bottom portions of both columns 5 and 6. Figures 9 and 10 show this

decimation operation where a decimation operation by the number 2 is illustrated "whereby every other pixel value is removed by unit **1012**." (Column 13, lines 13 and 14).

Returning to Figure 1, the block compressor 30/recompressor of Canfield is detailed in Figure 3 as two principal elements comprising a variable length compressor 316 and a fixed length compressor 322 shown in more detail in Figures 4 and 5 respectively. The fixed length compressing network shown in Figure 5 includes a quantizer 562 which "may be considered as a form of look-up table." (Column 12, lines 10-11.) To the extent that this teaching would indicate to the artisan that the quantizer may be implemented in the form of a look-up table, its functionality is limited because the output bits are stated to represent addresses having 4-bit data in the case of 50% compression. Different percentages of a compression appear to be selectable according to this teaching of the references here and at column 4, lines 23 to 33. The significant feature here is that the table analogy appears to teach a constant 4-bit data output value and not a corresponding hybrid quantization coding technique using a first codeword set and a second codeword set, where the second codeword set has a second fixed length shorter than the first set as required by independent claims 1 and 6 on

appeal. Thus, the examiner's comments at the bottom of page 5 of the answer regarding this teaching at column 12 of Canfield are misplaced.

The examiner has asserted at the top of page 3 of the final rejection that Canfield does not teach the feature of dynamically selecting in independent claims 1 and 6 on appeal, for example, but asserts that the reference does so at the top of page 6 of the answer. We do not agree with this characterization in view of the findings that we just made with respect to the alternative teaching/suggestion at column 12 for the quantizer 562 of the fixed length compressor in Figure 5.

The examiner's reliance upon Liu is also misplaced. Although it is clear from the abstract in the summary of the invention at column 4 of Liu that this reference teaches hybrid decoding operations, there is no explicitly taught hybrid quantization table of the type set forth in independent claims 1 and 6 on appeal but merely a hybrid methodology. This involves the technique of parsing certain short length variable length code data using a binary tree or binary search procedure and then

parsing the longer variable length codes using a table look-up procedure. This table look-up procedure in part begins to be detailed at column 7 of Liu and the examiner's corresponding discussion begins at the bottom of page 7 of the answer.

However, this reference too fails to teach or suggest the hybrid codeword table arrangement of the type set forth in independent claims 1 and 6 on appeal regarding the claimed first and second respective sets of fixed length codewords, the second set of which has a length shorter than the first length. Therefore, even considering the teachings and suggestions of both references together most favorably to the examiner, the subject matter of these independent claims would not be met anyway.

Appellants' arguments in the brief and reply brief that this secondary reference to Liu is inappropriate to rely upon is in part well-taken. The focus of this reference involves the decoding of variable length code data and not any encoding or compressing operations to the extent recited in the claims on appeal. As a general matter, we agree with the examiner's views that there is a certain converse thinking process known in the art that such a decoding process would have engendered in the mind of the artisan a corresponding encoding operation. Liu itself fails to teach explicitly any corresponding coding

operations. The examiner's reasoning as to this correspondence is not developed in a persuasive manner based upon the teachings and suggestions in Liu. Therefore, it is highly problematic even if we agree with the examiner that it would have been obvious to the artisan to have used the decoding environment of Liu as a teaching for an encoding environment in the corresponding structure of Canfield. We are left with no evidentiary basis in effect to support the examiner's reasoning as to the particulars of the combination.

Lastly we turn to the subject matter of independent claim 10 on appeal, which does not recite explicitly any form of a table arrangement, either a hybrid quantization coding table of independent claim 1 or a compression table of claim 6. Significantly, however, this claim 10 does recite the feature of "dynamically selecting between codewords of different length associated with first and second codewords sets." As is evident from our earlier discussion in this opinion regarding the specific teachings and suggestions of both references relied upon, even if they were considered collectively in the best light toward the examiner's position, this feature cannot be met as well.

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In view of the foregoing, the decision of the examiner rejecting independent claims 1, 6 and 10 on appeal is reversed, as is the examiner's decision to reject their respective dependent claims. Therefore, the decision of the examiner rejecting claims 1-18 under 35 U.S.C. § 103 is reversed.

REVERSED

James D. Thomas	)	
Administrative Patent Judge	)	
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	)	
Errol A. Krass	)	BOARD OF PATENT
Administrative Patent Judge	)	APPEALS AND
	)	INTERFERENCES
	)	
	)	
Parshotam S. Lall	)	
Administrative Patent Judge	)	

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Joseph S. Tripoli  
Patent Operations GE & RCA  
Licensing Management Operation, Inc.  
CN 5312  
Princeton, NJ 08543-0028